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The Effects of the Quantification of Faculty Productivity: Perspectives from the Design Science Research Community

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Abstract:

In recent years, efforts to assess faculty research productivity have focused more on the measurable quantification of academic outcomes. For benchmarking academic performance, researchers have developed different ranking and rating lists that define so-called high-quality research. While many scholars in IS consider lists such as the Senior Scholar's basket (SSB) to provide good guidance, others who belong to less-mainstream groups in the IS discipline could perceive these lists as constraining. Thus, we analyzed the perceived impact of the SSB on information systems (IS) academics working in design science research (DSR) and, in particular, how it has affected their research behavior. We found the DSR community felt a strong normative influence from the SSB. We conducted a content analysis of the SSB and found evidence that some of its journals have come to accept DSR more. We note the emergence of papers in the SSB that outline the role of theory in DSR and describe DSR methodologies, which indicates that the DSR community has rallied to describe what to expect from a DSR manuscript to the broader IS community and to guide the DSR community on how to organize papers for publication in the SSB.

Keywords: Senior Scholar Basket, Information Systems Discipline, Research Inquiry, Design Science Research.

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1 Introduction

Discussions about research productivity are not new in academic circles. Historically, faculty evaluation processes often relied on qualitative assessments such as peer evaluation, chairs' annual reviews, or discipline-based benchmarking (Centra, 1977). For example, when awarding tenure or promotion, many universities continue to solicit external reviews of faculty members' performance relative to their peers. More recently, quantitative metrics for evaluating productivity and impact have become more pervasive. For example, Harzing's Publish or Perish and Google Scholar¹ provide access to raw citation counts and calculated scores such as the H-index and I-index. Perhaps due to the greater availability of quantifiable data, a growing literature focuses on developing and applying metrics for evaluating faculty productivity and journal quality (Lowry, Romans, & Curtis, 2004).

Quantitative comparisons of faculty performance and journal quality have entered the consciousness of various academic disciplines, such as business administration. The corresponding journal ranking lists come in many forms. Business schools use differentiated lists of journals, which professional associations such as the Chartered Association for Business Schools (ABS) or German Economics Association (GEA) have constructed, to identify and rank faculty and university research productivity. Universities use undifferentiated lists of high-quality outlets, which entities such as the Financial Times (FT)² or BusinessWeek³ have constructed, to rank MBA programs. Such rankings have different normative and financial rationales and, thus, have different implications for institutions, departments, and individuals in terms of reputation, merit pay, tenure and promotion, teaching assignments, PhD and Masters' student application rates, and alumni giving.

The information systems (IS) discipline has not been able to exclude itself from the increasing pressure to provide direct social and economic impact with its research. Thus, researchers have increasingly used once-uncommon performance indicators to measure academics' productivity (see Katerattanakul, Razi, Han, & Kam, 2005; Lowry et al., 2004) and quantify their performance (see Chen et al., 2015; Dennis, Valacich, Fuller, & Schneider, 2006). The Association for Information Systems (AIS) Senior Scholars basket (SSB)⁴ offers a discipline-based view of refereed journals with high standing. Announced in 2007, the AIS SSB identified six journals as high-quality outlets for IS research: *MIS Quarterly* (MISQ), *Information Systems Research* (ISR), *Journal of the Association for Information Systems* (JAIS), *Journal of Management Information Systems* (JMIS), *Information Systems Journal* (ISJ), and *European Journal of Information Systems* (EJIS). In 2011, the Senior Scholars added *Journal of Information Technology* (JIT) and *Journal of Strategic Information Systems* (JSIS) to the basket.

One might support the development and adoption of a discipline-specific journal list for many reasons. First, such a list can serve as guidance and orientation for younger scholars and provide a mechanism to help junior faculty survive in tenure and promotion processes. For example, the Senior Scholars and the AIS have promoted the SSB as a resource for external letter writers to cite when assessing the quality of applicants for jobs, tenure, or promotion. Second, such a list can position IS as a diverse discipline in concert with other disciplines such as computer science or management. Third, a discipline-supported list can serve as a necessary response to scant representation of IS journals in the FT list or in the UT-Dallas research rankings. Based on the SSB list and underscoring this point, Viswanath Venkatesh constructed an interactive tool that made it easier to assess IS faculty and school productivity by country or globally⁵.

Published research on journal lists tends to focus on constructing and justifying lists. IS researchers have questioned the composition of "business journal" lists for making cross-discipline comparisons. For example, Templeton and Lewis (2015) found that some business disciplines, including management information systems, had a disadvantage in terms of recognition and inclusion relative to other disciplines. Other IS researchers have questioned the methods used to construct and assign value to IS journal lists. For example, after applying journal-quality metrics to the AIS SSB, Lowry et al. (2013, pp. 993-994) identified two tiers of journals. Specifically, they found that "*MIS Quarterly*, *Information Systems Research*, and *Journal of Management Information Systems* belong[ed], in that order, to the highest A+ tier". Most

¹ <https://scholar.google.com/>

² <http://www.ft.com/cms/s/2/3405a512-5cbb-11e1-8f1f-00144feabdc0.html#axzz44uO6vtGp>

³ <https://goo.gl/ferqeM>

⁴ <https://aisnet.org/?SeniorScholarBasket>

⁵ <https://myvisionresearch.com/>

questioning has focused on the composition of or value that lists assign to journals rather than on their implications for scholarship.

In contrast, relatively few conference panels or published studies have questioned how the emergence of a discipline-based journal list has affected IS scholarship. Although journal list objectiveness and composition represent important topics, we believe we also need to consider the broader normative implications of journal lists in general, and the SSB list in particular, as they pertain to our scholarship. Thus, we ask: as a discipline that comprises scholars with many different intellectual heritages and traditions, how have journal lists influenced our discipline? How have the growing quantification of faculty performance and the construction of journal quality lists influenced our discipline? Have any unintended consequences emerged?

Answering such questions is important. Although journal lists can appear to emerge from an objective process, they signal which types of research we value as a community of scholars. Deliberately or not, the discipline uses them to (formally and informally) evaluate performance and to grant status or assign rank in our home departments, across disciplines, and in the broader IS discipline itself. How we evaluate performance affects what we prioritize when socializing students, making life-altering tenure and promotion decisions, and constructing research projects. It defines our discipline and, thereby, individual researchers in it.

From a behavioral economics point of view, a list exemplifies a mechanism design (Hurwicz, 1973). As a community, we implement lists as normative guidance and a set of incentives, such as receiving a promotion or tenure when publishing in the journals on those lists. If the mechanism aligns with the community's and individuals' interests, it will work. Community members will play the game to develop their careers. If possible, some will try to circumvent the mechanism to achieve their aim with less effort and burden, but researchers have already described such circumvention the principle agent dilemma (Eisenhardt, 1989). Others will go into opposition and deny the legitimacy of such a list if they cannot or do not want to follow the normative rules that the community to which they belong has implemented. Thus, from a behavioral game theory point of view, individuals can react to social norms such as journal lists in different ways. A community or its representatives, such as senior scholars, try to act in the best interests of the community, "nudge" community members to behave in their own interest, and maximize social welfare.

Furthermore, lists have an influence on careers, whether implicit or explicit, wished or unwished. Once one has applied quantification to something that one did not or could not previously count, it is human nature to count and compare. In other words, data will always beat intuition or gut feelings regardless of the data's quality. As such, as a discipline, we must be mindful when bringing lists and other normative instruments into existence.

Without a doubt, lists such as the SSB make or break academic careers. Without lists, we might lose the safety fences by which other disciplines recognize us and our work as a discipline. Conversely, if too restrictive, the safety fences might risk excluding communities of IS researchers whose natural publication outlets might differ from the mainstream.

In this manuscript, we investigate what impact lists have on IS research and, in particular, on the experiences of design science research (DSR) community in the IS discipline. We chose DSR as a context for evaluating lists' impact on IS scholarship because DSR scholars may have different scientific goals compared to other IS researchers. For example, the qualitative data we collected at several design science-oriented conferences indicates that our colleagues often have to request external funding in order to conduct their work and projects. Many have worked in multidisciplinary teams and produced premier publications in other disciplines such as biology or computer science.

DSR focuses on creating novel socio-technical artifacts (Gregor & Hevner, 2013) in order to realize alternative futures (Purao, 2013). Though not always labeled as DSR, a rich tradition of IS scholars conducting technical, design-focused research exists (Nunamaker & Chen, 1990; Rossi, Henfridsson, Lyytinen, & Siau, 2013; Walls, Widmeyer, & El Sawy, 1992). The DSR community, however, has historically struggled in defining their identity in the broader IS community (Baskerville, 2008); as such, such lists might impact the community more than other scholars in the discipline. By considering how DSR researchers perceive the SSB to affect the DSR community, we hope to draw lessons and implications more broadly for how journal lists may affect scholarship in the IS discipline and in academia in general.

Our findings indicate that the SSB list has had both positive and negative effects on the DSR community. The DSR community came together and successfully published in SSB journals. However, we also found evidence of three additional effects. As our survey results indicate, DSR scholars reported changing their method, which may potentially indicate that the safety fences have narrowed DSR research. Second, we found evidence that themes in the literature in what the SSB journals have labeled as DSR have broadened. Finally, we found evidence that the number of publications in SSB journals has increased.

This paper proceeds as follows: in Section 2, we introduce design science research. In Section 3, we present qualitative data that we collected at several design science-oriented conferences. In Section 4, we present the results of a survey of design science researchers that asked them 1) to rate journals' receptivity to DSR work and 2) about their perceptions of journal impact on their careers. In Section 5, we analyze DSR research published in the SSB list and compare perceptions with actual publications. Finally, in Section 6, we discuss what impact the SSB list has had on DSR research and conclude the paper.

2 Design Science Research

DSR focuses on socio-technical artifacts (Gregor & Hevner, 2013) that solve real-world problems. As such, it creates innovative artifacts that provide solutions to perceived problems (Purao, 2013). One can apply design science methods to adapt (or create) an IT artifact to appropriate the goals of the surroundings in which it operates (Simon, 1981). As such, DSR differs greatly from the social science worldview, which seeks truthful laws or theory. Positivistic behavioral research, the leading research method in IS, theory rests on observation and becomes accepted and extended over time as further observation supports the relationships established in the theories. The DSR community's focus on normative improvements and utility as a goal clearly differs from the goals of behavioral IS research since the latter focuses on explaining observed phenomena. One might ask, then, whether the publication outlets for these two IS communities align with each other. We consider this question in Section 3.

3 Perceptions from the DSR Community: Difficulties in Publishing DSR Work in SSB Journals

We began investigating the effects of lists, particularly discipline-based lists, by seeking signals from faculty across the discipline. We wondered how lists affected DSR scholars and their scholarship. We speculated that lists might shift DSR researchers' priorities and goals and wondered whether the scholarship of the broader IS discipline might mirror these shifts. We began by participating in conferences, attending panels, and conducting informal interviews to obtain impact indicators from the community.

In 2013, we attended the International Conference on Design Science Research in Information Systems and Technology (DESRIST) and Workshop on Information Technologies and Systems (WITS) meetings. At the 2013 DESRIST and WITS meetings, we listened to the general conversation in panels, participated in small-group discussions, and asked fellow DSR scholars for their impressions about the future of DSR and its place in the IS community.

DESRIST began in 2006 and has become a valued venue for DSR. The conference includes work that presents new and innovative constructs, models, methods, processes, and systems. DESRIST includes a mix of research: it includes prototypes, posters, and research papers on both artifacts and methodologies. The conference draws scholars from different backgrounds, such as information systems, computer science, software engineering, energy informatics, and medical informatics. These scholars are interested in design problems and information systems.

In June, 2013, DESRIST took place in Helsinki. Approximately 100 DSR scholars attended the conference, which included a mix of senior faculty, junior faculty and PhD students. Its acceptance rate for research papers was approximately 40 percent. Participants presented papers, demonstrated prototypes, and participated in panels. Two panels, "Doing Design Research" and "The IT Artifact in Design Research", focused on defining the artifact and defining DSR methodology. Faculty panelists described how to include theory and how to package DSR research for journal publication. The conversation and questions that junior faculty asked the panelists appeared to concentrate on how to publish DSR in the SSB list.

The Workshop on Information Technologies and Systems (WITS) began in 1991. WITS includes quantitatively/technically oriented work that addresses complex business problems or societal issues using current and emerging information technologies. The WITS community finds particular interest in research that can change how information technology functions (e.g., by designing, modifying, or constructing systems) such that IT can better solve real-world problems.

In December, 2013, WITS took place in Milan. In total, 140 participants attended the conference. Due to the conference's longevity, its attendees differed from those who attended DESRIST, such as senior academics less likely to feel necessary to justify their research. Its acceptance rate for papers was 17 percent. As with DESRIST, the program included research papers, a prototype session, and panels. Despite the workshop attendees being more senior, the keynote, which Paulo Goes delivered, had the title: "Looking for Design Science Research in Top-Tier IS Journals. Has Anyone Seen It?".

At DESRIST and WITS, we found a sense of unease with IS and business journal lists. We heard many conversations discussing how to craft and conduct a DSR paper that journals in the SSB or the UT-Dallas list would publish. Senior and junior DSR scholars offered surprisingly consistent comments on journal lists: they viewed them as affecting how they approached their work and their prospects for promotion. A more senior scholar commented:

My department has always accepted ACM and IEEE journals. This is no longer true. They are glad I can teach the technical courses, but as far as they are concerned, I will be a permanent associate unless I change my research. When I was recruited, these were not the conditions. But the rules have changed.

Many IS scholars who were actively engaged in high-quality DSR research voiced frustration with the IS discipline's growing focus on a narrow basket of lists and expressed fear that such a focus would affect their ability to achieve tenure or promotion. Echoing this sentiment, a junior scholar noted:

I have been told that [being] an assistant professor conducting DSR research is risky; work will not publish to UT Dallas. I come to the conference to network with people that might help me package my work for those journals.

4 Perceptions from the DSR Community: Receptivity, Impact, and Shifting Methods

We left DESRIST and WITS with a qualitative understanding of how DSR scholars viewed journal lists and how the lists impacted their work. DSR researchers felt that the AIS SSB journal lists had pushed them to publish in a narrower set of outlets and to create a narrower set of scholarly contributions. To publish papers in "listed journals", DSR researchers actively discussed how best to conduct and package their work. They needed to have this discussion because publication in top IS journals appeared to require adhering to implicit normative scripts that the SSB editorial boards used. To diffuse knowledge of how to conform to such scripts, DSR scholars gave keynotes, sponsored panels, had public small-group sessions, and participated in private conversations at their meetings about how to create a broader script of what constituted "good IS research". DSR researchers appeared to feel compelled to do so because, absent publications that appeared in journals in the SSB, they felt it was substantially more difficult to earn recognition in the discipline or tenure at their home institutions.

To validate our qualitative understanding, we conducted a survey that asked DSR community members to rate journals' receptivity to DSR work and their perceptions of journal impact on their careers (LeRouge & De Leo, 2010). Our survey captured the breadth of the journals that publish IS research: behavioral, quantitative, and technical. We asked respondents to rate any journal that was ranked by more than 50 percent of the nine ranking publications considered on the AIS MIS journal rankings page (AIS, 2012). We also asked them to rate all of the journals listed in the design science research in information systems page (see <http://desrist.org/design-research-in-information-systems>). Combining these sources yielded 60 journals. We received 57 completed responses to our survey. Given that DESRIST and WITS draw approximately 200 participants and that we received responses from faculty at all ranks (e.g., lecturers, assistant professors, associate professors, and full professors), we felt that our sample captured a reasonable percentage and adequately represented the DSR community. Appendix B describes our method, sample characteristics, and the survey.

In addition to asking about journal receptivity and impact, we solicited opinions on whether DSR community members changed their publication outlets, topics, and methods to conform to requirements that journal lists created. We asked our respondents to rate three statements on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree):

- 1) The journals my unit expects for tenure and promotion are receptive to work in design science research.
- 2) I have altered my research methodology to publish toward my unit's expected journal.
- 3) I have altered my research topics to publish toward my unit's expected journals.

Additionally, we provided an open-ended comment box for respondents to provide richer responses to these three statements.

Our survey's results amply confirmed our qualitative understanding; that is, that a disconnect between the SSB and outlets for DSR research existed. Table 1 presents the top 10 journals by mean receptivity, and Table 2 presents the top 10 journals by mean impact. With the exception of *Decision Support Systems* and *Journal of the AIS*, we found no overlap between the top 10 journal lists. In fact, *Journal of the AIS* was the only journal from the SSB that appeared in the top 25 most receptive journals. Appendix C presents the full set of journal rankings by receptivity and impact. This analysis confirmed our intuition that DSR researchers felt that the outlets that would most likely positively impact their career were less receptive to their type of research.

To gain richer insight into which journals DSR researchers felt were open to their work and held the potential to advance their careers, we constructed a third list of journals that sat at the intersection of receptivity and impact (see Table 3). We included journals rated at least 3.6 for both receptivity and impact. We used this cutoff because a natural gap for both axes appeared when we plotted the data, not unlike a "knee" in a factor analysis.

Consistent with the DSR community's focus on technical topics, the majority of the most receptive, high-impact journals were more technical and interdisciplinary than journals found in the SSB. A comment from an assistant professor underscored the importance of valuing interdisciplinary journals:

A viable way to publish, we have a decent A list and I have a design science article accepted at one of our A journals and a revise and resubmit at another. If it were all about MISQ and ISR here it would be an issue, but there are more outlets available to me.

Of the eight journals, the Association for Computing Machinery (ACM) or the Institute of Electrical and Electronics Engineers (IEEE) sponsored six. Moreover, consistent with the DSR ethos of conducting research relevant to solving real-world problems, the list included *Communications of the ACM*, a journal focused on disseminating technical knowledge to a broad general audience. This focus on interdisciplinary outlets agrees with comments that one assistant professor offered:

Journal rankings for tenure positions do not reflect the broad scope of design science research (e.g., they completely miss many important CS journals and almost all specialized conferences).

Notably, the list included *Journal of the AIS*, the youngest journal in the SSB basket. Although *JAIS* appears in the impactful-receptivity list, it had the lowest rating for receptivity. The list also included *Decision Support Systems*, a historically significant outlet for DSR research. This analysis underscored our implicit understanding that the DSR community focuses more on the technical, values placing work in interdisciplinary outlets, and seeks to speak to practice.

When we examined whether our respondents felt that journal lists changed how they selected their publication outlets, topics, and methods, we found evidence that assistant, associate, and full professors perceived and responded to lists in different ways (see Table 4).

Table 1. Journals Ranked by Mean Receptivity¹

Journal name		Mean receptivity
1	<i>ACM Transactions on Management Information Systems</i>	4.44
2	<i>Decision Support Systems</i>	4.28
3	<i>IEEE Transactions on Knowledge and Data Engineering</i>	4.09
4	<i>ACM Transactions on Information Systems</i>	4.06
5a	<i>Journal of Database Management</i>	3.82
5b	<i>ACM Transactions on Database Systems</i>	3.82
7	<i>IEEE Transactions on Software Engineering</i>	3.81
8	<i>Data and Knowledge Engineering</i>	3.74
9	<i>Communications of the ACM</i>	3.69
10a	<i>IEEE Transactions on Systems, Man, and Cybernetics Part A: Systems and Humans</i>	3.68
10b	<i>Journal of the Association of Information Systems</i>	3.68

¹ Anchors: 1 = strongly disagree, 5 = strongly agree.

Table 2. Journals Ranked by Perceived Impact¹

Journal name		Mean impact
1	<i>Information Systems Research</i>	4.60
2	<i>MIS Quarterly</i>	4.54
3	<i>Journal of Management Information Systems</i>	4.38
4	<i>Management Science</i>	4.24
5	<i>Journal of the Association of Information Systems</i>	4.12
6	<i>Decision Support Systems</i>	4.02
7	<i>European Journal of Information Systems</i>	3.96
8	<i>Information Systems Journal</i>	3.89
9	<i>Organization Science</i>	3.83
10a	<i>Decision Sciences</i>	3.82
10b	<i>Communications of the ACM</i>	3.82

¹ Anchors: 1 = strongly disagree, 5 = strongly agree.

Table 3. Journals Ranked by Mean Impact and Mean Receptivity¹

Journal	Mean impact	Mean receptivity
1 <i>Journal of the Association for Information Systems</i>	4.12	3.68
2 <i>Decision Support Systems</i>	4.02	4.28
3 <i>Communications of the ACM</i>	3.82	3.69
4 <i>IEEE Transactions on Software Engineering</i>	3.79	3.81
5 <i>ACM Transactions on Database Systems</i>	3.71	3.82
6 <i>ACM Transactions on Management Information Systems</i>	3.69	4.44
7 <i>IEEE Transactions on Knowledge and Data Engineering</i>	3.69	4.09
8 <i>ACM Transactions on Information Systems</i>	3.64	4.06

¹ Anchors: 1 = strongly disagree, 5 = strongly agree.

Table 4. Means for Journal Acceptance and Choice of DSR Topics and Methods by Position¹

	The journals my unit expects for tenure and promotion are receptive to work in design science research.	I have altered my research methodology to publish toward my unit's expected journals.	I have altered my research topics to publish toward my unit's expected journals.
Assistant professor (n = 17, 31%)	3.06	3.59	2.94
Associate professor (n = 12, 21.8%)	3.50	3.25	3.33
Full professor (n = 26, 47.2%)	3.81	2.58	2.46
Overall (n = 55)	3.51	3.00	2.79
¹ Our dataset included an instructor and one adjunct professor who we dropped from this analysis for a total sample size of 55. Anchors: 1 = strongly disagree, 5 = strongly agree.			

We conducted independent-sample two tailed t-tests to compare means by respondent rank for each of the three questions for nine tests. A Levene's test of equality confirmed that assumptions of homogeneity of variances were met. We found three significant differences in means.

First, on the question concerning whether participants perceived that the journals expected for tenure and promotion accepted design science research, we found a significant difference ($p = 0.037$) in the scores between assistant professors ($M = 3.06$, $SD = 1.029$) and full professors ($M = 3.81$, $SD = 1.167$). These results suggest that assistant professors did not have as much confidence about whether the journals that their institutions required them to publish in to receive tenure and promotion would publish DSR work. An assistant professor underscored this point when commenting on the peer-review process.

Reviewers and editors don't know how to consider design science. The exception is IEEE and ACM transactions. My department accepts them as top shelf. However, many IT/IS departments around the country do not consider those to be premier outlets.

Second, on the question about whether participants perceived that they had to alter their research methodology to publish toward journals expected for their unit, we found a significant difference ($p = 0.004$) in the scores of assistant professors ($M = 3.59$, $SD = 1.004$) and full professors ($M = 2.58$, $SD = 1.102$). These results suggest assistant professors, who are worried about tenure, feel the pressure to change methodology and abandon DSR to publish in a journal in the SSB list.

Third, on the question concerning whether participants had altered research topics to publish toward the journal list, we found a significant difference ($p = 0.05$) in the scores associate professors ($M = 3.33$, $SD = 1.497$) and full professors ($M = 2.46$, $SD = 1.104$). These results suggest that associate professors are more likely to alter topics to publish work in an SSB journal.

In sum, we found particularly illuminating findings to the second and third questions—particularly when one considers responses by faculty rank. Assistant professors appear to remain committed to their research topics but willing to amend their choice of methods to publish in the SSB. Assistant professors appear more willing to conform to the broader normative scripts for “good IS research” found in the broader discipline. For example, one assistant professor reported:

Our department has a long history of DSR and is a strong supporter of design-oriented research approaches in which researchers collaborate with practitioners. However, the ongoing discourse about relevance and rigor in combination with the “right” research approach, of course, affects also our internal debate.

This willingness could result from the short timelines that assistant professors have: feeling pressure from the tenure clock, they might lack time to completely retool their topics; consequently, they might turn to different methods that they feel will more likely fit the script of a top journal.

Perhaps absent pressure from a tenure clock but still seeking promotion, associate professors appear to be most willing to change topic. Associate professors' willingness to change might result from recognizing that the IS discipline's context has shifted in terms of topics and methods. Consistent with this view, one Associate professor reported:

Conducting the research is not an issue, but publishing in the top MIS journals is not as easy as publishing a typical behavioral or survey-based research using SEM or PLS.

Enjoying the privileges that come with tenure and rank, full professors reported the highest level of commitment to studying DSR topics using traditional DSR methods. Absent the pressure to secure further promotion, one full professor commented:

I have total freedom in pursuing my research agenda in design science. I have been working in design science for over 20 years and just love it.

Another full professor echoed the sentiment that with rank came the freedom to pursue a DSR-focused agenda:

As a chaired professor at a high-ranked European university and the only chaired professor in the department, I to a very large extent am able to do what I want. My DSR work and my DSR view affect my colleagues (incl. my PhD students). Compared with 10 years ago, we are doing much more DSR, and several DSR dissertations have been completed in the last five years.

From our survey, junior faculty seemed to most strongly perceive risk in their choice of method. To gather further information from this demographic, we organized a panel of “DSR natives” (either late-stage PhD students or early-stage junior faculty whose dissertations contained a significant DSR element) at DESRIST 2016.

The panelists reported gratitude for methodological guidance: “Thanks to the DSR giants for publishing guidelines on DSR. This was very helpful in knowing how to present our work.”. However, they also reported challenges with others’ accepting the method: “My university had no experience with DSR, and didn’t really understand it. But it was clear that the DSR method was the right way forward for our problem.”.

Further, they reported concerns about expectations going forward: “It’s easier to publish the results of a lab experiment based on a DSR artifact, as opposed to the DSR artifact itself. It’s as if the artifact becomes an appendix.”. And they reported a possible strategic decision to be made in the context of lists: “My department is accepting of DSR work, but the university I’m going to has clear expectations for publications in the SSB. Do I stay true to myself? Or do I adapt to the expectations of the list?”.

Our survey data, along with the discussion from the DESRIST 2016 panel, indicate that DSR researchers perceive a disconnect between the type of research they would prefer to do (and the outlets receptive to this work) and the type of work that the SSB journals have traditionally published. We consider whether this disconnect holds true in the SSB publication record in Section 5.

5 Design Science Research in the Basket Journals: Is it Growing More Prevalent?

We wondered whether we could find evidence in the SSB publication record to corroborate the DSR scholars’ perceptions about how journals in the SSB consider DSR work (i.e., whether the SSB journals publish DSR work). If these journals have in fact begun to more significantly consider DSR work, we postulated that we would expect to see such an impact longitudinally in the years after the SSB emerged. If we could find greater rates of publication, we wondered whether we could detect a point in time at which DSR papers started to appear at greater rates in SSB journals. To evaluate this notion, we performed a content analysis of published papers in SSB journals⁶.

Our analysis began with papers published since 2004 for two reasons. First, 2004 marks the year that Hevner, March, Park, and Ram (2004) introduced the term “design science research” with an accompanying descriptive framework in *MIS Quarterly*. Although DSR has formed a part of the IS discipline since its inception, Hevner et al.’s work provided a readily searchable label for this broad body of technical work. Second, the SSB’s appearance in 2007 provided a three-year lead during which DSR scholars would have felt no impetus to publish on the “list”. Thus, 2004 provided a reasonable opportunity to detect evidence of a “knee” developing when DSR researchers might have more actively started pursuing publication in basket journals after 2007.

⁶ We wish to thank our anonymous reviewer that provided strong guidance on how to conduct our content analysis.

We used Web of Science to search for all the manuscripts published in the SSB from 2004 to 2017 that contained one of the following terms in the title, abstract, or keywords: “design science”, “design research”, “design science research”, “design theory”, “science of design”, or “design principles” (we modified search terms based on the terms that Fischer (2011) presents). However, the Web of Science did not index one journal, *JAIS*, prior to 2006⁷. To include data for these years, we searched for *JAIS* papers using the same terms in the *JAIS* website. Guided by Peffers, Tuunanen, and Niehaves (2018), we created the coding scheme that we display in Table 5. We read the abstract and, in many instances, also the body text in order to classify the papers. We also relied on the keywords that the papers’ authors supplied.

We began with a list of 177 papers. For our analysis, we removed papers that mentioned DSR in passing (31), editorials (23), research commentaries (9), and literature reviews (1). Clearly, papers that simply mention DSR do not pertain to our analysis. We opted to remove editorials and research commentaries because they typically do not follow customary blind review process. Finally, we removed the one literature review we found because it represents a historical view of DSR rather than a new contribution in DSR. After screening, the reduced dataset included 113 papers. Appendix D lists the full set of 177 papers and their corresponding labels.

Table 5. DSR Publications in SSB Journals Coding Scheme

Label	Definition	Count
<i>Action design research (ADR)</i>	Designing a problem-solving artifact while learning from the intervention, practice-inspired research (Sein, Henfridsson, Purao, Rossi, & Lindgren, 2011)	8
<i>Artifact (Artf)</i>	Applicable artifact development (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007; Winter, 2008)	58
<i>Design principles (DPrin)</i>	Captures knowledge about instances of a class of artifacts (Chandra, Seidel, & Gregor, 2015; Sein et al., 2011)	13
<i>Design theories (DT)</i>	Composition and presentation of design theories (Gregor & Jones, 2007)	16
<i>Editorial</i>	Non-peer-reviewed editorial (such as the introduction to a special issue)	23
<i>Literature review</i>	Literature analyses and bibliometric content analysis	1
<i>Methodology (Met)</i>	Illustrates a particular procedure or set of procedures for conducting design science research	18
<i>Mentioned in passing</i>	DSR mentioned in passing (e.g., discussing future DSR as a potential implication or as one of many possible methods, mentioned the word design)	31
<i>Research commentary</i>	Invited by editor in chief to discuss a research stream or methodological approach and offer important insights into where the field should go (MISQ Quarterly, 2018)	9

Our initial analysis shows some evidence that, although DSR scholars reported a sense of unease with the SSB, they appeared to be publishing papers in SSB journals at greater rates (see Figure 1). When one adjusts for the five papers published in the DSR special issue of *MIS Quarterly* in 2008 (four artifacts, one design principles), our bar graph clearly shows a slight increase in 2010 in the number of DSR papers in SSB journals.

⁷ https://proquest.libguides.com/ld.php?content_id=22114745

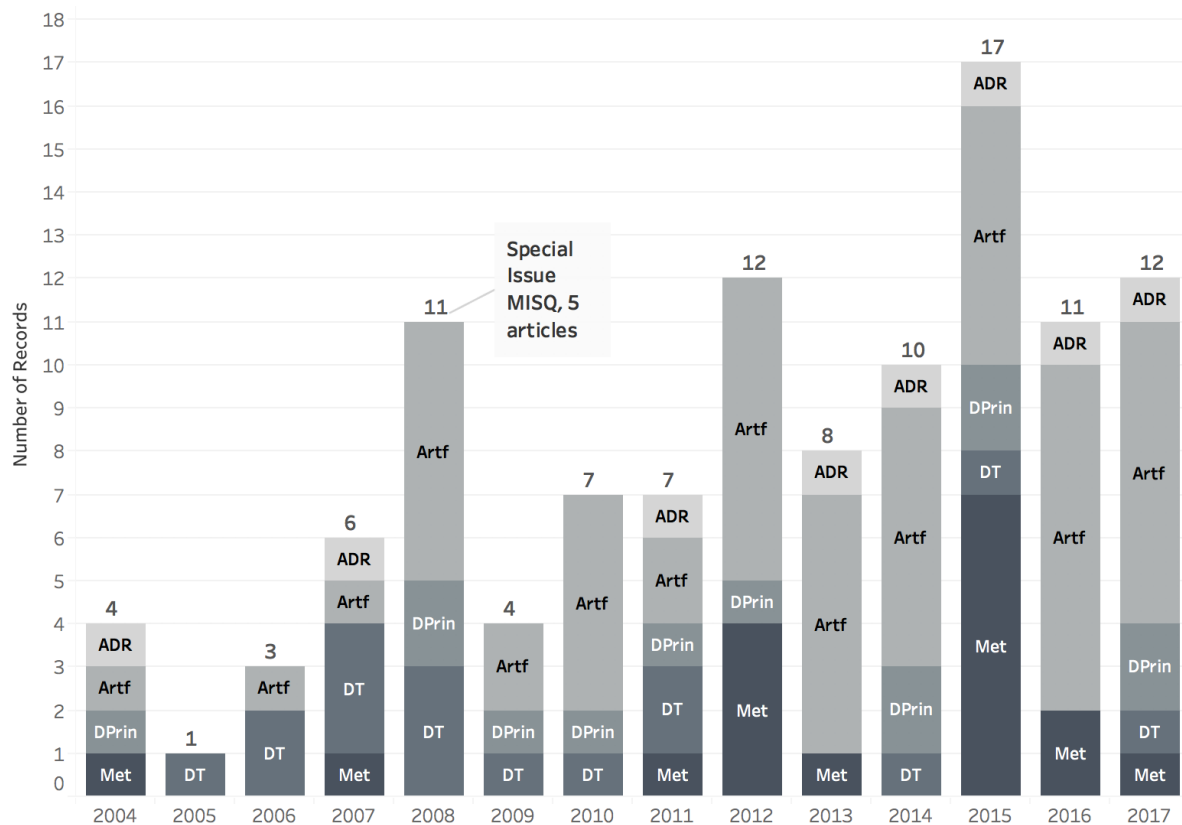


Figure 1. DSR Work Appearing in SSB Journals

To obtain a sense of how the number of DSR publications compares to total publications in the SSB, we used Web of Science to conduct a second analysis for all papers published in the SSB from 2004 to 2017 (and we again conducted a separate search for 2004 and 2005 for *JAIS* papers). For each journal, we gathered data on total publication counts in each journal on an annual basis. We again excluded all editorials, research notes, and literature reviews.

In Figure 2, we demonstrate our results both as a crosstab and a line graph and include a trend line for the percentage of DSR publications compared to the total number of publications by year. We believe that our data indicate an increasing trend of DSR publications in the SSB. However, one should note the small percentages (3-7%). Though we can see an increase, it is small.

In this context, we consider the question of whether or not this content analysis validates the DSR perceptions from the qualitative and survey data. As we note above, we see a small increasing trend in DSR. Given these numbers, for a not-insignificantly sized group of researchers (minimally, at least a few hundred researchers based on conference attendance at DESRIST and WITS), publishing DSR work in the SSB journals clearly remains a challenge. Further, we note that perception data tends to emphasize the historical record (i.e., not only what occurs now but also what has happened in the past). According to our analysis, the greater bulk of DSR publications have occurred in the last few years. For the first half of our analysis period (2004 to 2010), only 36 DSR-related publications appeared in the SSB, an annual average of five per year. Given this finding, perceptions from the DSR community do not surprisingly describe significant challenges in this regard.



Figure 2. DSR Publications Compared to all Publications Appearing in SSB Journals

We further investigated the DSR papers published in the SSB by analyzing DSR publications by individual journals (Table 6). We report both the total number of publications identified as DSR and DSR work as a percentage of the total publications by journal. We found that DSR scholars correctly perceived *JAIS* as the most accessible SSB journal. On a yearly basis, between three to 10 percent of *JAIS* publications were DSR. We were surprised and encouraged to find that *MISQ* published 31 DSR papers, more than *JAIS*. The editors of *MISQ* demonstrated public support of DSR work through a special issue focused on DSR (March & Storey, 2008) and a later editorial (Goes, 2014) that called for more DSR research in IS (p. vi). However, *MISQ* published a small percentage of DSR papers relative to the total number of papers it published, though the percentage shows evidence of growth. The same holds true for *JMIS*. The rest of the SSB journals also indicate some growth, albeit small, in the number of published DSR papers. Overall, this finding suggests that, though DSR scholars correctly perceived limited opportunities to publish papers in the SSB, evidence shows that the editorial boards for these journals have demonstrated a willingness to publish DSR papers.

Finally, in Table 7, we analyzed the DSR publications by category label to explore the types of DSR work that appear in the SSB. We found that, when DSR researchers did publish in the SSB, 51 percent of the papers were artifacts, 16 percent were methodology papers, 14 percent were design theory papers, 12 percent were design principles, and seven percent were action design research.

Three of these categories (specifically artifacts, design principles, and action design research) represent work that describes an output of the DSR/ADR method (i.e., outcome-oriented work) and presents evidence of utility. Such work accounted for 70 percent of the DSR-related contributions published in the SSB. The remaining 30 percent were theory and methodology papers. We consider each of these categories in more detail next.

Table 6. DSR Publication Counts and Percentages by SSB Journals

	JAIS	MISQ	JMIS	ISJ	EJIS	JSIS	JIT	ISR
2004		3 (17%)	1 (3%)					
2005	1 (7%)							
2006	1 (4%)			1 (8%)			1 (5%)	
2007	4 (14%)		1 (3%)	1 (6%)				
2008	2 (9%)	5 (17%)			4 (11%)			
2009	3 (10%)		1 (3%)					
2010	3 (10%)	1 (3%)	1 (3%)			1 (5%)	1 (4%)	
2011	2 (7%)	5 (11%)						
2012	3 (9%)	4 (7%)	1 (3%)		1 (3%)		1 (6%)	2 (3%)
2013	1 (4%)	4 (7%)	2 (5%)			1 (5%)		
2014	1 (3%)	2 (4%)	3 (8%)	1 (6%)	3 (8%)			
2015	3 (10%)	1 (2%)	6 (12%)	2 (12%)	2 (6%)	1 (6%)	1 (4%)	1 (2%)
2016	2 (8%)	3 (6%)	2 (5%)	2 (8%)	2 (7%)			
2017	2 (7%)	3 (6%)	2 (5%)	1 (4%)		1 (6%)	1 (5%)	2 (4%)
Total	28 (7%)	31 (6%)	20 (4%)	8 (3%)	12 (2%)	4 (2%)	5 (2%)	5 (1%)

Table 7. DSR Publications by SSB Journals by Label

Journal	Action design research	Artifact	Design principles	Design theory	Methodology
<i>Management Information Systems Quarterly (MISQ)</i>	2	22	2	1	4
<i>Journal of the Association for Information Systems (JAIS)</i>		14	3	8	3
<i>Journal of Management Information Systems (JMIS)</i>	1	12	2	2	3
<i>European Journal for Information Systems (EJIS)</i>		3	3	2	4
<i>Information Systems Journal (ISJ)</i>	4	2			2
<i>Information Systems Research (ISR)</i>		3	1	1	
<i>Journal of Information Technology (JIT)</i>			1	2	2
<i>Journal for Strategic Information Systems (JSIS)</i>	1	2	1		
Total	8	58	13	16	18
Percentage	7%	51%	12%	14%	16%

The set of theory papers (16 / 14%) may indicate that the DSR community has begun to introduce how theory works to form the grounding of DSR inquiry (see Table 8). Indeed, one can find several papers that discuss the role of theory in DSR (Baskerville, Kaul, & Storey, 2015; Germonprez, Hovorka, & Collopy, 2007; Germonprez et al., 2016; Gregor, 2006; Gregor & Jones, 2007; Kuechler & Vaishnavi, 2008, 2012; Pries-Heje & Baskerville, 2008). At the present time, the role of theory in DSR work is an open question in the DSR community and the subject of considerable internal debate. In our work here, we do not focus on contributing to the substantive discussion of theory in DSR; rather, we simply consider whether the mechanism pressure from lists appears to have had any influence on this publication stream.

Table 9 shows the distribution of methodology papers by journal and year. The set of methodology papers (18 / 16%) direct attention to defining norms and methods for how to conduct DSR research in a manner that makes sense to the IS community. We believe that this research thread may indicate that the DSR community has begun to organize and suggest ways to present DSR papers so they have a higher chance of being published in SSB journals and to introduce DSR to the broader IS community with descriptions of what to expect from “good” DSR work. Most often, these papers take identify best practices for how to conduct DSR research. Not unlike research method papers on quantitative or qualitative approaches to research, these papers present prescriptive guidelines on how to incorporate theory or how to apply DSR methods rigorously in scholarly inquiry. Often, they present templates or scripts for how to demonstrate that one has conducted research in a rigorous manner or to enfold theory. For example, several DSR papers (Andrade, Urquhart, & Arthanari, 2015; Gregor & Hevner, 2013; Iivari,

2015; Lee, Thomas, & Baskerville, 2015; Mandviwalla, 2015; Papas, O'Keefe, & Seltsikas, 2012; Peffers et al., 2007) describe methodologies to craft and position DSR.

Table 8. Design Theory Publications in SSB Journals

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>EJIS</i>					2									
<i>ISJ</i>														
<i>ISR</i>														1
<i>JAIS</i>		1	1	3		1		2						
<i>JIT</i>			1				1							
<i>JMIS</i>											1	1		
<i>JSIS</i>														
<i>MISQ</i>					1									
Total		1	2	3	3	1	1	2			1	1		1

Table 9. DSR Methodology Publications in SSB Journals

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<i>EJIS</i>									1			1	2	
<i>ISJ</i>												2		
<i>ISR</i>														
<i>JAIS</i>									2			1		
<i>JIT</i>									1					1
<i>JMIS</i>				1								2		
<i>JSIS</i>														
<i>MISQ</i>	1							1		1		1		
Total	1			1				1	4	1		7	2	1

Interestingly, the first half of our analysis period (2004 to 2010) contained only two publications on the DSR method (one of which was Hevner et al. (2004), which introduced the term design science research to the IS community), though, as we discuss above, IS scholars have a rich tradition of conducting technical, design-focused research (Nunamaker & Chen, 1990; Rossi, Henfridsson, Lyytinen, & Siau, 2013; Walls et al., 1992). Almost all of the method papers appeared in the SSB beginning in 2011. Considers this timing against when the SSB appeared (i.e., in 2007) and the (roughly) three-year peer review process for SSB journals, these method papers may be a direct response from the DSR community to the list mechanism's pressure to publish to SSB journals.

To summarize, from analyzing DSR papers in the SSB, we found multiple interesting data points. We found that our results support the DSR community's original perceptions: the SSB has published a small number of DSR papers—especially in the earlier years of our analysis. However, we found evidence of a slight increase in the number of DSR publications in the SSB journals. We believe that these findings provide some support for our intuition that the lists have changed IS scholarship; after 2007, our evidence suggests that DSR researchers adjusted their expectations and pursued publication in SSB journals and that some SSB journals have responded by demonstrating an increasing willingness to consider DSR work for publication. Finally, it appears that the DSR community has responded to the pressure to publish in the SSB by producing a set of papers that help the broader community understand what to expect from DSR work and to help the DSR community prepare their work toward these expectations. Given their timing, these method papers appear to have appeared directly due to the list mechanism's pressure.

6 Discussion

Our findings support two notable arguments: that DSR researchers have changed their methods in order to publish to lists that their institutions have adopted and what the IS community considers to constitute DSR has broadened. Spitzer (2007) points out that a “dark side” to performance measurement exists: when one uses performance measures to capture performance improvements, they can be highly valuable. However, when one directly links such measures with rewards or punishment (e.g., promotion/tenure, teaching-load decisions), individuals tend to focus on the rewards or punishments. Gomez-Mejia and Balkin (1992) found that the number of top-tier journal publications a faculty member has primarily determines their remuneration. Another study found that researchers should focus on not only career issues such as tenure and promotion but also finding research outlets that value their ideas and life’s work (Tahai & Meyer, 1999). Researchers might try to optimize for both, which could elicit dysfunctional and unintended responses (or “gaming” the system) as they find ways to align their research to match the incentives (Courty & Marschke, 2003, 2004). Again, these responses point to evidence of mechanism’s pressure to publish to SSB journals. Baskerville and Pries-Heje (2016, p. 13) provide a warning for what they call “wrapping new science in old-science wrappers”:

As a community interested in developing design science research as a new method and with a philosophical lens, it is important to maintain the deep connections with new-science paradigm in which the research often resides. While wrapping design science research in old-science wrappers is useful at times, the distinctive characteristics of this research genre actually lie in its new-science attributes. Significant design science research should primarily be significant as new-science, and only incidentally significant as old-science.

Our analysis of DSR publications in the SSB indicates that the DSR community has made significant improvements in presenting and publishing DSR research. This development reflects also the formation of a commonly accepted description of how researchers should present DSR in order to make inroads into the SSB journals. Baskerville et al. (2015) has recently described this phenomenon as “bounded creativity”, which they define as a motivation and energizing force that stimulates creativity rather than only inhibits it.

We also found evidence of a broadening of themes in the literature in what the SSB journals labeled as DSR: artifacts, design principles, action design research, design theories, and methodology. Methodology and design theory papers indicate that the community has begun to rally to establish norms that can lead researchers to successfully publish DSR in the SSB journals. Further, it points toward signs of a cumulative culture in which researchers build on prior research findings and, thereby, build an increasingly consistent body of knowledge that provides a valuable research facet to the broad profile of IS as a discipline. We consider this trend a promising change that will further strengthen IS in comparison to other disciplines at business schools. From an institutional point of view, it signals a maturing community and progress and development.

We cannot, however, ignore the fact that the DSR community perceives that the journal outlets that accept their work do not match up with journal outlets that they perceive to be impactful from a career perspective. We note that the journals deemed receptive show strong representation from the computer science and software engineering disciplines—clear referent disciplines for the IS discipline.

DSR scholars accurately perceived how well impactful journals accepted their work. Our data from the content analysis indicates that DSR scholars correctly perceived that *JAIS* represented the most accessible SSB journal. *MISQ* published 31 DSR papers, more than *JAIS*. However, *MISQ* published a small percentage of DSR papers relative to the total number of papers it published, though the percentage shows evidence of growth. The same holds true for *JMIS*. The rest of the SSB journals also indicate some growth, albeit small, in the number of DSR papers they have published. Thus, we found mixed results.

In this research, we examine how influentially the SSB has shaped the DSR discipline’s development. It is not a stretch to predict that we would find similar results if we examined other subcommunities, their perceptions of receptivity and impact, and their work’s representation in top journals. For example, conceptual researchers (Hirschheim, 2008) and grounded theory method researchers (Lehmann & Fernández, 2007) have voiced similar concerns. It would be interesting to learn if these communities have had similar trajectories.

Our work has three important limitations. First, we did not capture how much DSR work that researchers have *not* conducted. Some DSR researchers, as our survey responses indicate, chose a safer route and

conducted more traditional research in order to increase the chance that a SSB journal would publish their work. Second, for our content analysis, we searched for our search terms in the title, abstract, and keywords and, thus, might have missed some manuscripts (e.g., one of the authors of this paper has a DSR paper in the SSB that did not make the analysis list). Third, it would also be interesting to compare our content-analysis results with publications in journals that our survey deemed most receptive to DSR (e.g., the ACM, IEEE journals). However, one would have to deal with several practical challenges in performing an analysis that we would consider as comparable to the analysis we discuss in this paper. Perhaps most significantly, we note that the term “design science” arose in the information systems community and has not (yet) spread beyond the IS domain. Our analysis relies on authors’ identifying their work as design related, yet many of the authors in these journals come from other communities and would describe their methods using different terminology. As such, we cannot replicate the Web of Science query we used in our analysis in the IEEE/ACM domain. Further, we have concerns about the possibility of inserting subjectivity into the analysis since we would not know whether authors would view (or have expected others to view) their work as design science. These challenges make it difficult, if not impossible, to replicate the analysis in the IEEE/ACM domain.

Note that, in this paper, we do not criticize the SSB but rather point out the unintended consequences of such lists. The committee of IS scholars who composed the SSB list clearly specified that “The College of Senior Scholars focused on behavioral, business-oriented IS research, which might reflect a majority, but is not a universal model that fits (or even should fit) all schools” (AIS, n.d.). Furthermore, they indicate: “Augmenting the list can also be important in some research schools. For example, in schools with a highly technical focus, the adopted journal list should obviously include highly-rated and/or highly-cited technical journals.” (AIS, n.d.). Clearly, the senior scholars intended that one should use the SSB should to evaluate only behavioral research and not to evaluate other subdisciplines.

Two of the authors of this paper have served as department chairs, and we both have found that the SSB list has been an extremely helpful instrument for evaluating the research productivity of IS faculty, particularly since IS journals have scant representation in two other lists: the FT list and the UT-Dallas research rankings. The SSB list has helped to define and communicate high-quality research in IS to outside institutions such as neighboring disciplines. In so doing, we can also regard the SSB list as an instrument that gives standing and legitimacy to high-quality IS research that we can present to the outside world. However, similar to the maturing and growth of IS as discipline with its changing shape and changing portfolio of research areas, we also need to acknowledge the merit of new approaches to remain an inclusive discipline.

In other words, defining overly narrow lists could create challenges for a discipline as heterogeneous as IS because many IS researchers do not only publish in top IS journals but also in top journals of related and referent disciplines. This heterogeneity represents a strength that provides the IS discipline with the ability to reinvent itself constantly since stimuli comes from different directions and subcommunities.

We believe one can fairly claim that those who have actually published DSR—and many have—actually identify and can be recognized as IS researchers who conduct DSR and that this finding represents a positive development. We can say the same of other subdisciplines. Today’s important research questions are likely multidisciplinary in nature and inevitably tied to practice. Thus, we constantly have to ask ourselves whether we do constrain or perhaps even curtail innovation when we limit publication outlets and whether we do explain the heterogeneity of the IS discipline to external communities to maximize our impact in the best possible way in order to also encourage our young scholars toward impactful and meaningful work.

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Appendix A: UT-Dallas List

- 1) *Academy of Management Journal*
- 2) *Academy of Management Review*
- 3) *Administrative Science Quarterly*
- 4) *Information Systems Research*
- 5) *Journal of Accounting and Economics*
- 6) *Journal of Accounting Research*
- 7) *Journal of Consumer Research*
- 8) *Journal of Finance*
- 9) *Journal of Financial Economics*
- 10) *Journal of International Business Studies*
- 11) *Journal of Marketing*
- 12) *Journal of Marketing Research*
- 13) *Journal of Operations Management*
- 14) *Journal on Computing*
- 15) *Management Science*
- 16) *Manufacturing and Service Operations Management*
- 17) *Marketing Science*
- 18) *MIS Quarterly*
- 19) *Operations Research*
- 20) *Organization Science*
- 21) *Production and Operations Management*
- 22) *Strategic Management Journal*
- 23) *The Accounting Review*
- 24) *The Review of Financial Studies*

Appendix B: Survey Methodology

Constructing a Journal List

We included journals that represent the breadth of the information systems research area: behavioral, quantitative, and technical. For breadth across the field, we considered the list of MIS journal rankings. To select the most relevant journals from this list, we retained any journal that was ranked by more than 50 percent of the nine ranking publications considered by the AIS ranking page (AIS, 2012). In terms of technically oriented journals, we included all of the journals listed in the “design science research in information systems” page (see <http://desrist.org/design-research-in-information-systems>). The combination of these two sources yielded 60 journals:

- 1) *Academy of Management Journal*
- 2) *Academy of Management Review*
- 3) *ACM Computing Surveys*
- 4) *ACM Transactions on Computer-Human Interaction*
- 5) *ACM Transactions on Database Systems*
- 6) *ACM Transactions on Information and System Security*
- 7) *ACM Transactions on Information Systems*
- 8) *ACM Transactions on Internet Technology*
- 9) *ACM Transactions on Management Information Systems*
- 10) *ACM Transactions on Software Engineering and Methodology*
- 11) *AIEDAM: Artificial Intelligence for Engineering Design, Analysis and Manufacturing*
- 12) *Business and Information Systems Engineering*
- 13) *Communications of the ACM*
- 14) *Communications of the Association for Information Systems*
- 15) *Data & Knowledge Engineering*
- 16) *DATA BASE for Advances in Information Systems*
- 17) *Decision Sciences*
- 18) *Decision Support Systems*
- 19) *Electronic Markets – The International Journal on Networked Business*
- 20) *European Journal of Information Systems*
- 21) *Harvard Business Review*
- 22) *IEEE Transactions on Computers*
- 23) *IEEE Transactions on Knowledge and Data Engineering*
- 24) *IEEE Transactions on Mobile Computing*
- 25) *IEEE Transactions on Multimedia*
- 26) *IEEE Transactions on Pattern Analysis & Machine Intelligence*
- 27) *IEEE Transactions on Software Engineering*
- 28) *IEEE Transactions on Systems, Man, Cybernetics Part A: Systems and Humans*
- 29) *IEEE Transactions on Systems, Man, Cybernetics Part C: Applications and Reviews*
- 30) *IEEE Transactions on Visualizations and Computer Graphics*
- 31) *IEEE/ACM Transactions on Networking*
- 32) *Information & Management*
- 33) *Information Resources Management Journal*
- 34) *Information Sciences*
- 35) *Information Systems*
- 36) *Information Systems Frontiers*
- 37) *Information Systems Journal*

- 38) *Information Systems Research*
- 39) *Information Technology & Management*
- 40) *Information Technology and Systems eJournal*
- 41) *Informing Science: The International Journal of an Emerging Transdiscipline*
- 42) *INFORMS Journal on Computing*
- 43) *Interfaces*
- 44) *Journal of Computer Information Systems*
- 45) *Journal of Database Management*
- 46) *Journal of Electronic Commerce Research*
- 47) *Journal of Information Systems*
- 48) *Journal of Management Information Systems*
- 49) *Journal of Strategic Information Systems*
- 50) *Journal of Systems and Software*
- 51) *Journal of the ACM*
- 52) *Journal of the Association for Information Systems*
- 53) *Management Science*
- 54) *MIS Quarterly*
- 55) *OMEGA—The International Journal of Management Science*
- 56) *Organization Science*
- 57) *Requirements Engineering Journal*
- 58) *Sloan Management Review*
- 59) *The Journal of the American Society for Information Science and Technology*
- 60) *The VLDB Journal*

Survey

We conducted a Web survey to collect DSR scholars' perceptions of these 60 journals: awareness, receptivity, and impact (Le Rouge & De Leo, 2010). Awareness measures perceived relevance (i.e., the extent to which respondents believe the journal is relevant to their research). Receptivity measures perceived acceptance (i.e., the extent to which respondents believe that journals will consider/accept their manuscripts for publication). Impact measures perceived relative reward (i.e., the extent to which respondents believe that publication in a journal will benefit their career progress).

We also asked several other questions such as 1) how the perceived receptivity of DSR by impactful journals had influenced their selection of topics and research methodology, 2) whether their department accepted design science research, and 3) whether their colleagues in their department conducted design science research. We also asked an open-ended question to solicit their comments on the subject of research publication outlets for DSR.

We developed the survey in Qualtrics and hosted it on that company's servers. Qualtrics has the capability to post to social media sites such as LinkedIn or send invitations via email. It also tracks IP addresses, which allows respondents to begin a survey at the point they left off, and disallows multiple responses from one IP address. We piloted the survey with five design scientist volunteers to determine its clarity and the length of time needed to complete it. We made a few small refinements, primarily for clarity, after the pilot. Because we posted our survey on the Internet, we decided to create a relatively complex Web address to minimize the number of responses from individuals outside of the targeted sample. We provided only those individuals who received an invitation with the Web address. We immediately disabled the survey after the close date. For a period of three months, we used several methods to invite participation. We repeated the requests once every month. In a request that specifically targeted design science researchers, we created a post to the AISWorld general mailing list with a link to the survey. Additionally, we posted a request and link to the survey to the LinkedIn "Design Science Research in Information Systems and Technology" (DESRIST) group. Finally, we obtained the mailing list for the program committees for WITS and DESRIST and created an email list (after removing duplicate names). We emailed a request with the link to our survey.

The survey presented the 60 journals in groups of 15 journals at a time over four pages. It asked respondents to consider awareness, receptivity, and impact for relevant journals. It defined journals as relevant to the participants if they met one or more of these criteria: 1) the participant had published or aspired to publish in the journal, 2) the participant frequently read manuscripts published in the journal, 3) the participant frequently cited work published in the journal, 4) the participant's unit or department considered the journal important for tenure and promotion, and/or 5) the participant considered the journal important for job placement. Next, the survey asked the participants a series of questions about their choices in light of receptivity and impact and about how free they felt to engage in DSR research. Finally, at the end of the survey, we gathered the following demographic data for each respondent: academic rank, whether they had a tenure-track position, highest degree earned, discipline of terminal degree, discipline of employment/study, and country of employment/study. We did not collect gender or age information because one could have possibly used these data points in combination with the demographic data we collected to identify individual respondents.

Appendix C: Survey Results

We received 138 responses to our survey. Not all responses contained sufficient data to include them in the analysis. We found that respondents generally fell into two categories: either they rated several journals and provided demographic data or they provided few (if any) journal ratings and no demographic data. We did not consider the responses in the latter category in our analysis. After removing incomplete responses, we had 57 responses suitable for inclusion in our analysis (41% completion rate). We provide profiles of the respondents by rank (Table C1), terminal degree (Table C2), position (Table C3), degree type and position type (Table C4), and location (Table C5) below.

Table C1. Respondents by Rank

Rank	
Professor	46%
Associate professor	21%
Assistant professor	29%
Instructor/lecturer	1%
Doctoral student/ABD	1%

Table C2. Respondents by Degree

Degree	
PhD	95%
Other	5%

Table C3. Respondents by Position

Position	
Tenure track	87%
Non-tenure track	9%
Not faculty	4%

Table C4. Respondents by Degree Type and Position Type

Area	Terminal degree	Area of employment
Computer science/electrical engineering/other engineering	10%	2%
Management information systems	67%	82%
Management/strategic management	2%	
Operations management/industrial engineering/decision sciences	3%	2%
Other	18%	14%

Table C5. Respondents by Location

Location	
Pacific/Asia	13%
Europe	30%
North America	58%

The survey allowed a respondent to choose to rate both receptivity and impact, receptivity alone, or impact alone for each journal. Thus, we have measures of awareness separately for both receptivity and impact. In practice, the difference between impact and receptivity awareness counts for any journal in our dataset was never greater than one; therefore, we report awareness as an average of these two counts. We report receptivity and impact as an average of the five-point Likert scale ratings for each journal.

We show the top 25 journals that show the strongest indications of receptivity to design science research as perceived by our respondents.

Table C6. Survey Journals Ranked by Mean Receptivity

	Journal name	Mean receptivity	Awareness
1	<i>ACM Transactions on Management Information Systems</i>	4.44	56%
2	<i>Decision Support Systems</i>	4.28	75%
3	<i>IEEE Transactions on Knowledge and Data Engineering</i>	4.09	56%
4	<i>ACM Transactions on Information Systems</i>	4.06	56%
5a	<i>Journal of Database Management</i>	3.82	49%
5b	<i>ACM Transactions on Database Systems</i>	3.82	49%
6	<i>IEEE Transactions on Software Engineering</i>	3.81	56%
7	<i>Data and Knowledge Engineering</i>	3.74	60%
8	<i>Communications of the ACM</i>	3.69	84%
9a	<i>IEEE Transactions on Systems, Man, and Cybernetics Part A: Systems and Humans</i>	3.68	54%
9b	<i>Journal of the Association for Information Systems</i>	3.68	70%
10a	<i>Business and Information System Engineering</i>	3.60	53%
10b	<i>IEEE Transactions on Computers</i>	3.60	44%
11	<i>ACM Transactions on Software Engineering and Methodology</i>	3.59	47%
12	<i>Communications of the Association of Information Systems</i>	3.53	75%
13	<i>ACM Transactions on Internet Technology</i>	3.50	49%
14	<i>IEEE Transactions on Systems, Man, and Cybernetics: Part C Applications and Reviews</i>	3.48	47%
15	<i>IEEE Transactions on Mobile Computing</i>	3.45	39%
16	<i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i>	3.43	37%
17	<i>Information Systems</i>	3.42	47%
18	<i>ACM Transactions on Computer-Human Interaction</i>	3.40	53%
19a	<i>INFORMS Journal on Computing</i>	3.37	47%
19b	<i>ACM Computing Surveys</i>	3.37	53%
20	<i>ACM Transactions on Information and System Security</i>	3.36	44%
21	<i>IEEE/ACM Transactions on Networking</i>	3.33	37%
22	<i>DATA BASE for Advances in Information Systems</i>	3.32	60%
23	<i>IEEE Transactions on Multimedia</i>	3.30	37%
24a	<i>Information Systems Frontiers</i>	3.29	54%
24b	<i>The VLDB Journal</i>	3.29	38%
25	<i>Decision Sciences</i>	3.26	60%
26a	<i>IEEE Transactions on Visualizations and Computer Graphics</i>	3.25	36%
26b	<i>European Journal of Information Systems</i>	3.25	82%
27c	<i>Requirements Engineering Journal</i>	3.25	43%
28	<i>Journal of Systems and Software</i>	3.14	38%

Table C6. Survey Journals Ranked by Mean Receptivity

29	<i>Journal of Management Information Systems</i>	3.10	74%
30a	<i>Journal of the ACM</i>	3.09	39%
30b	<i>Information Technology & Management</i>	3.09	41%
31a	<i>MIS Quarterly</i>	3.00	93%
31b	<i>Journal of Computer Information Systems</i>	3.00	44%
32	<i>Information Systems Research</i>	2.95	75%
33	<i>Information Sciences</i>	2.80	35%
34	<i>Journal of Information Systems</i>	2.79	34%
35	<i>AIEDAM</i>	2.78	32%
36a	<i>Interfaces</i>	2.77	39%
36b	<i>Information Systems Journal</i>	2.77	47%
37	<i>The Journal of the American Society for Information Science and Technology</i>	2.64	39%
38	<i>Management Science</i>	2.59	59%
39a	<i>Information Technology and Systems eJournal</i>	2.56	30%
39b	<i>Informing Science: The International Journal of an Emerging Transdiscipline</i>	2.56	32%
40	<i>Journal of Electronic Commerce Research</i>	2.55	35%
41	<i>Information Resources Management Journal</i>	2.50	29%
42	<i>Electronic Markets – The International Journal on Networked Business</i>	2.33	44%
43	<i>OMEGA – The International Journal of Management Science</i>	2.32	39%
44	<i>Information & Management</i>	2.29	54%
45	<i>Journal of Strategic Information Systems</i>	2.15	46%
46	<i>Organization Science</i>	1.80	43%
47	<i>Sloan Management Review</i>	1.55	39%
48	<i>Academy of Management Review</i>	1.54	46%
49a	<i>Academy of Management Journal</i>	1.50	48%
49b	<i>Harvard Business Review</i>	1.50	53%

We show journals that showed the strongest indications of impact on our respondents' careers as perceived by our survey respondents. We show the top 26 journals here for illustrative purposes.

Table C7. Survey Journals Ranked by Mean Impact

	Journal name	Mean impact	Awareness
1	<i>Information Systems Research</i>	4.60	74%
2	<i>MIS Quarterly</i>	4.54	91%
3	<i>Journal of Management Information Systems</i>	4.38	74%
4	<i>Management Science</i>	4.24	58%
5	<i>Journal of the Association of Information Systems</i>	4.12	72%
6	<i>Decision Support Systems</i>	4.02	75%
7	<i>European Journal of Information Systems</i>	3.96	81%
8	<i>Information Systems Journal</i>	3.89	49%
9	<i>Organization Science</i>	3.83	42%
10a	<i>Decision Sciences</i>	3.82	60%
10b	<i>Communications of the ACM</i>	3.82	86%
11	<i>IEEE Transactions on Software Engineering</i>	3.79	58%
12	<i>Harvard Business Review</i>	3.73	53%

Table C7. Survey Journals Ranked by Mean Impact

13	<i>ACM Transactions on Database Systems</i>	3.71	49%
14a	<i>ACM Transactions on Management Information Systems</i>	3.69	56%
14b	<i>IEEE Transactions on Knowledge and Data Engineering</i>	3.69	56%
15	<i>ACM Transactions on Information Systems</i>	3.64	58%
16	<i>Journal of Strategic Information Systems</i>	3.54	46%
17	<i>Academy of Management Review</i>	3.48	47%
18	<i>Academy of Management Journal</i>	3.44	47%
19a	<i>IEEE Transactions on Computers</i>	3.42	46%
19b	<i>ACM Computing Surveys</i>	3.42	54%
19c	<i>IEEE Transactions on Systems, Man, and Cybernetics Part A: Systems and Humans</i>	3.42	54%
19d	<i>Information & Management</i>	3.42	54%
20a	<i>Sloan Management Review</i>	3.41	39%
20b	<i>ACM Transactions on Software Engineering and Methodology</i>	3.41	47%
21	<i>Journal of the ACM</i>	3.35	39%
22	<i>Information Systems</i>	3.31	46%
23a	<i>Communications of the Association of Information Systems</i>	3.20	76%
23b	<i>Journal of Database Management</i>	3.20	51%
23c	<i>ACM Transactions on Computer-Human Interaction</i>	3.20	53%
24	<i>ACM Transactions on Internet Technology</i>	3.17	50%
25	<i>IEEE Transactions on Systems, Man, and Cybernetics: Part C Applications and Reviews</i>	3.14	48%
26a	<i>ACM Transactions on Information and System Security</i>	3.12	45%
26b	<i>INFORMS Journal on Computing</i>	3.12	46%
27	<i>Data & Knowledge Engineering</i>	3.11	61%
28a	<i>IEEE Transactions on Pattern Analysis & Machine Intelligence</i>	3.05	38%
28b	<i>IEEE/ACM Transactions on Networking</i>	3.05	38%
29	<i>IEEE Transactions on Mobile Computing</i>	3.04	39%
30	<i>OMEGA – The International Journal of Management Science</i>	3.00	39%
31	<i>DATA BASE for Advances in Information Systems</i>	2.97	60%
32	<i>Interfaces</i>	2.96	39%
33	<i>The VLDB Journal</i>	2.95	38%
34	<i>IEEE Transactions on Visualizations and Computer Graphics</i>	2.90	36%
35	<i>The Journal of the American Society for Information Science and Technology</i>	2.86	39%
36	<i>IEEE Transactions on Multimedia</i>	2.82	37%
37	<i>Information Systems Frontiers</i>	2.77	34%
38a	<i>Journal of Information Systems</i>	2.75	34%
38b	<i>Information Technology & Management</i>	2.75	41%
39	<i>Information Sciences</i>	2.70	35%
40	<i>Requirements Engineering Journal</i>	2.68	43%
41	<i>Journal of Electronic Commerce Research</i>	2.65	35%
42	<i>Journal of Computer Information Systems</i>	2.60	44%
43	<i>Journal of Systems and Software</i>	2.59	38%
44	<i>Information Resources Management Journal</i>	2.47	29%

Table C7. Survey Journals Ranked by Mean Impact

45	<i>Business and Information Systems Engineering</i>	2.42	54%
46	<i>AIEDAM</i>	2.21	32%
47	<i>Electronic Markets – The International Journal on Networked Business</i>	2.19	44%
48	<i>Information Technology and Systems eJournal</i>	2.06	30%
49	<i>Informing Science: The International Journal of an Emerging Transdiscipline</i>	2.05	32%

Appendix D: List of Basket Journals Analyzed

Table D1 lists all the papers that we included in our content analysis along with the label we assigned each one during the content-analysis process.

Table D1. Papers Included in Content Analysis with Labels

Paper	Label
Aanestad, M., & Jensen, T. B. (2011). Building nation-wide information infrastructures in healthcare through modular implementation strategies. <i>Journal of Strategic Information Systems</i> , 20(2), 161-176.	Mentioned in passing
Abbasi, A., Albrecht, C., Vance, A., & Hansen, J. (2012). Metafraud: A meta-learning framework for detecting financial fraud. <i>MIS Quarterly</i> , 36(4), 1293-1327.	Artifact
Abbasi, A., & Chen, H. C. (2008). Cybergate: A design framework and system for text analysis of computer-mediated communication. <i>MIS Quarterly</i> , 32(4), 811-837.	Artifact
Abbasi, A., Sarker, S., & Chiang, R. H. L. (2016). Big data research in information systems: Toward an inclusive research agenda. <i>Journal of the Association for Information Systems</i> , 17(2), i-xxxii.	Editorial
Abbasi, A., Zahedi, F., Zeng, D., Chen, Y., Chen, H. C., & Nunamaker, J. F. (2015). Enhancing predictive analytics for anti-phishing by exploiting website genre information. <i>Journal of Management Information Systems</i> , 31(4), 109-157.	Artifact
Abbasi, A., Zhang, Z., Zimbra, D., Chen, H., & Nunamaker, J. F. (2010). Detecting fake websites: The contribution of statistical learning theory. <i>MIS Quarterly</i> , 34(3), 435-461.	Artifact
Adipat, B., Zhang, D. S., & Zhou, L. N. (2011). The effects of tree-view based presentation adaptation on mobile web browsing. <i>MIS Quarterly</i> , 35(1), 99-121.	Artifact
Adomavicius, G., Bockstedt, J. C., Gupta, A., & Kauffman, R. J. (2008). Making sense of technology trends in the information technology landscape: a design science approach. <i>MIS Quarterly</i> , 32(4), 779-809.	Artifact
Agerfalk, P. J. (2010). Getting pragmatic. <i>European Journal of Information Systems</i> , 19(3), 251-256.	Editorial
Agerfalk, P. J. (2013). Embracing diversity through mixed methods research. <i>European Journal of Information Systems</i> , 22(3), 251-256.	Editorial
Arnott, D., & Pervan, G. (2014). A critical analysis of decision support systems research revisited: The rise of design science. <i>Journal of Information Technology</i> , 29(4), 269-293.	Methodology
Astor, P. J., Adam, M. T. P., Jercic, P., Schaaff, K., & Weinhardt, C. (2013). Integrating biosignals into information systems: A neuroIS tool for improving emotion regulation. <i>Journal of Management Information Systems</i> , 30(3), 247-277.	Artifact
Bardhan, I. R., Demirkan, H., Kannan, P. K., Kauffman, R. J., & Sougstad, R. (2010). An interdisciplinary perspective on IT services management and service science. <i>Journal of Management Information Systems</i> , 26(4), 13-64.	Mentioned in passing
Baskerville, R. (2008). What design science is not. <i>European Journal of Information Systems</i> , 17(5), 441-443.	Editorial
Baskerville, R., Lyytinen, K., Sambamurthy, V., & Straub, D. (2011). A response to the design-oriented information systems research memorandum. <i>European Journal of Information Systems</i> , 20(1), 11-15.	Methodology
Baskerville, R. L., Kaul, M., & Storey, V. C. (2015). Genres of inquiry in design-science research: Justification and evaluation of knowledge production. <i>MIS Quarterly</i> , 39(3), 541-564.	Methodology
Baskerville, R. L., & Myers, M. D. (2015). Design ethnography in information systems. <i>Information Systems Journal</i> , 25(1), 23-46.	Editorial
Beath, C., Berente, N., Gallivan, M. J., & Lyytinen, K. (2013). Expanding the frontiers of information systems research: Introduction to the special issue. <i>Journal of the Association for Information Systems</i> , 14(4), i-xvi.	Editorial
Benbasat, I., & Wang, W. (2005). Trust in and adoption of online recommendation agents. <i>Journal of the Association for Information Systems</i> , 6(3), 72-101.	Mentioned in passing
Bergman, M., Lyytinen, K., & Mark, G. (2007). Boundary objects in design: An ecological view of design artifacts. <i>Journal of the Association for Information Systems</i> , 8(11), 546-568.	Design theory
Briggs, R. O., Nunamaker, J. F., & Sprague, R. H. (2004). Special issue: Information systems design—theory and methodology. <i>Journal of Management Information Systems</i> , 20(4), 5-8.	Editorial

Table D1. Papers Included in Content Analysis with Labels

Buhl, H. U., Fridgen, G., Konig, W., Roglinger, M., & Wagner, C. (2012). Where's the competitive advantage in strategic information systems research? Making the case for boundary-spanning research based on the German business and information systems engineering tradition. <i>Journal of Strategic Information Systems</i> , 21(2), 172-178.	Mentioned in passing
Buhl, H. U., Muller, G., Fridgen, G., & Roglinger, M. (2012). Business and information systems engineering: A complementary approach to information systems—what we can learn from the past and may conclude from present reflection on the future. <i>Journal of the Association for Information Systems</i> , 13(4), 236-253.	Mentioned in passing
Busquets, J. (2015). Discovery paths: Exploring emergence and IT evolutionary design in cross-border M&As. Analysing Gropu Santander's acquisition of Abbey (2004-2009). <i>European Journal of Information Systems</i> , 24(2), 178-201.	Design principles
Butler, T., & Murphy, C. (2007). Understanding the design of information technologies for knowledge management in organizations: A pragmatic perspective. <i>Information Systems Journal</i> , 17(2), 143-163.	Action design research
Chan, Y. E., & Greenaway, K. E. (2005). Theoretical explanations for firms' information privacy behaviors. <i>Journal of the Association for Information Systems</i> , 6(6), 171-198.	Mentioned in Passing
Chatterjee, S., Sarker, S., & Fuller, M. A. (2009). A deontological approach to designing ethical collaboration. <i>Journal of the Association for Information Systems</i> , 10(3), 138-169.	Design theory
Chaturvedi, A. R., Dolk, D. R., & Drnevich, P. L. (2011). Design principles for virtual worlds. <i>MIS Quarterly</i> , 35(3), 673-684	Design principles
Chau, M., & Xu, J. (2012). Business intelligence in blogs: Understanding consumer interactions and communities. <i>MIS Quarterly</i> , 36(4), 1189-1216.	Artifact
Chen, H. C., Chiang, R. H. L., & Storey, V. C. (2012). Business intelligence and analytics: From big data to big impact. <i>MIS Quarterly</i> , 36(4), 1165-1188.	Editorial
Chen, J. Q., Fan, M., & Li, M. Z. (2016). Advertising versus brokerage model for online trading platforms. <i>MIS Quarterly</i> , 40(3), 575-596.	Mentioned in passing
Chen, R., Sharman, R., Rao, H. R., & Upadhyaya, S. J. (2013). Data model development for fire related extreme events: An activity theory approach. <i>MIS Quarterly</i> , 37(1), 125-147.	Artifact
Cheng, X. S., Fu, S. X., & Druckenmiller, D. (2016). Trust development in globally distributed collaboration: A case of US and Chinese mixed teams. <i>Journal of Management Information Systems</i> , 33(4), 978-1007.	Artifact
Choi, J., Nazareth, D. L., & Jain, H. K. (2010). Implementing service-oriented architecture in organizations. <i>Journal of Management Information Systems</i> , 26(4), 253-286.	Artifact
Chou, C. H., Zahedi, F. M., & Zhao, H. M. (2014). Ontology-based evaluation of natural disaster management websites: A multistakeholder perspective. <i>MIS Quarterly</i> , 38(4), 997-1016.	Artifact
Corbett, J. (2013). Designing and using carbon management systems to promote ecologically responsible behaviors. <i>Journal of the Association for Information Systems</i> , 14(7), 339-378.	Artifact
Currim, F., & Ram, S. (2012). Modeling spatial and temporal set-based constraints during conceptual database design. <i>Information Systems Research</i> , 23(1), 109-128.	Artifact
D'Aubeterre, F., Singh, R., & Iyer, L. (2008). A semantic approach to secure collaborative inter-organizational ebusiness processes (SSCIOBP). <i>Journal of the Association for Information Systems</i> , 9(3-4), 231-266.	Artifact
Day, J. M., Junglas, I., & Silva, L. (2009). Information flow impediments in disaster relief supply chains. <i>Journal of the Association for Information Systems</i> , 10(8), 637-660.	Design principles
Dimoka, A., Pavlou, P. A., & Davis, F. D. (2011). NeuroIS: The potential of cognitive neuroscience for information systems research. <i>Information Systems Research</i> , 22(4), 687-702.	Mentioned in passing
Druckenmiller, D. A., & Acar, W. (2009). An agent-based collaborative approach to graphing causal maps for situation Formulation. <i>Journal of the Association for Information Systems</i> , 10(3), 221-251.	Artifact
Ebel, P., Bretschneider, U., & Leimeister, J. M. (2016). Leveraging virtual business model innovation: A framework for designing business model development tools. <i>Information Systems Journal</i> , 26(5), 519-550.	Artifact
Eriksson, O., & Agerfalk, P. J. (2010). Rethinking the meaning of identifiers in information infrastructures. <i>Journal of the Association for Information Systems</i> , 11(8), 433-454.	Design principles

Table D1. Papers Included in Content Analysis with Labels

Flath, C. M., Friesike, S., Wirth, M., & Thiesse, F. (2017). Copy, transform, combine: Exploring the remix as a form of innovation. <i>Journal of Information Technology</i> , 32(4), 306-325.	Mentioned in passing
Fridgen, G., Hafner, L., Konig, C., & Sachs, T. (2016). Providing utility to utilities: The value of information systems enabled flexibility in electricity consumption. <i>Journal of the Association for Information Systems</i> , 17(8), 537-563.	Artifact
Gannon, B. (2013). Outsiders: An exploratory history of IS in corporations. <i>Journal of Information Technology</i> , 28(1), 50-62.	Mentioned in passing
Germonprez, M., Hovorka, D., & Collopy, F. (2007). A theory of tailorable technology design. <i>Journal of the Association for Information Systems</i> , 8(6), 351-367.	Mentioned in passing
Germonprez, M., Hovorka, D., & Gal, U. (2011). Secondary design: A case of behavioral design science research. <i>Journal of the Association for Information Systems</i> , 12(10), 662-683.	Design theory
Germonprez, M., & Hovorka, D. S. (2013). Member engagement within digitally enabled social network communities: New methodological considerations. <i>Information Systems Journal</i> , 23(6), 525-549.	Design theory
Germonprez, M., Kendall, J. E., Kendall, K. E., Mathiassen, L., Young, B., & Warner, B. (2017). A theory of responsive design: A field study of corporate engagement with open source communities. <i>Information Systems Research</i> , 28(1), 64-83.	Design theory
Ghobadi, S., & Robey, D. (2017). Strategic signalling and awards: Investigation into the first decade of AIS best publications awards. <i>Journal of Strategic Information Systems</i> , 26(4), 360-384.	Mentioned in passing
Gholami, R., Watson, R. T., Hasan, H., Molla, A., & Bjorn-Andersen, N. (2016). Information systems solutions for environmental sustainability: How can we do more? <i>Journal of the Association for Information Systems</i> , 17(8), 521-536.	Editorial
Giesbrecht, T., Schwabe, G., & Schenk, B. (2017). Service encounter thinklets: How to empower service agents to put value co-creation into practice. <i>Information Systems Journal</i> , 27(2), 171-196.	Action design research
Giessmann, A., & Legner, C. (2016). Designing business models for cloud platforms. <i>Information Systems Journal</i> , 26(5), 551-579.	Action design research
Goes, P. B. (2014). Design science research in top information systems journals. <i>MIS Quarterly</i> , 38(1), iii-viii.	Editorial
Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. <i>European Journal of Information Systems</i> , 21(2), 135-146.	Mentioned in passing
Gosain, S., Malhotra, A., & El Sawy, O. A. (2004). Coordinating for flexibility in e-business supply chains. <i>Journal of Management Information Systems</i> , 21(3), 7-45.	Design principles
Granados, N. F., Gupta, A., & Kauffman, R. J. (2006). The impact of IT on market information and transparency: A unified theoretical framework. <i>Journal of the Association for Information Systems</i> , 7(3), 148-178.	Mentioned in passing
Gregor, S. (2006). The nature of theory in information systems. <i>MIS Quarterly</i> , 30(3), 611-642.	Mentioned in passing
Gregor, S., & Hevner, A. R. (2013). Positioning and presenting design science research for maximum impact. <i>MIS Quarterly</i> , 37(2), 337-355.	Methodology
Gregor, S., Imran, A., & Turner, T. (2014). A "sweet spot" change strategy for a least developed country: Leveraging e-Government in Bangladesh. <i>European Journal of Information Systems</i> , 23(6), 655-671.	Design principles
Gregor, S., & Jones, D. (2007). The anatomy of a design theory. <i>Journal of the Association for Information Systems</i> , 8(5), 312-335.	Design theory
Gregory, R. W., & Muntermann, J. (2014). Heuristic theorizing: Proactively generating design theories. <i>Information Systems Research</i> , 25(3), 639-653.	Research commentary
Guo, X. H., Wei, Q., Chen, G. Q., Zhang, J., & Qiao, D. D. (2017). Extracting representative information on intra-organizational blogging platforms. <i>MIS Quarterly</i> , 41(4), 1105-1127.	Artifact
Hanseth, O., & Lyytinen, K. (2010). Design theory for dynamic complexity in information infrastructures: The case of building internet. <i>Journal of Information Technology</i> , 25(1), 1-19.	Design theory
Hariharan, A., Adam, M. T. P., Dorner, V., Lux, E., Muller, M. B., Pfeiffer, J., & Weinhardt, C. (2017). Brownie: A platform for conducting neuroIS experiments. <i>Journal of the Association for Information Systems</i> , 18(4), 264-296.	Artifact

Table D1. Papers Included in Content Analysis with Labels

Heiskanen, A., Newman, M., & Eklun, M. (2008). Control, trust, power, and the dynamics of information system outsourcing relationships: A process study of contractual software development. <i>Journal of Strategic Information Systems</i> , 17(4), 268-286.	Mentioned in passing
Hervner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science in information systems research. <i>MIS Quarterly</i> , 28(1), 75-105.	Methodology
Hustad, E., & Olsen, D. H. (2014). Educating reflective enterprise systems practitioners: A design research study of the iterative building of a teaching framework. <i>Information Systems Journal</i> , 24(5), 445-473.	Action design research
Huysman, M., & Wulf, V. (2006). IT to support knowledge sharing in communities, towards a social capital analysis. <i>Journal of Information Technology</i> , 21(1), 40-51.	Design theory
Iivari, J. (2015). Distinguishing and contrasting two strategies for design science research. <i>European Journal of Information Systems</i> , 24(1), 107-115.	Methodology
Iivari, J. (2017). Information system artefact or information system application: That is the question. <i>Information Systems Journal</i> , 27(6), 753-774.	Research commentary
Irwin, G., & Turk, D. (2005). An ontological analysis of use case modeling grammar. <i>Journal of the Association for Information Systems</i> , 6(1), 1-36.	Design theory
Ives, B., Parks, M. S., Porra, J., & Silva, L. (2004). Phylogeny and power in the IS domain: A response to Benbasat and Zmud's call for returning to the IT artifact. <i>Journal of the Association for Information Systems</i> , 5(3), 108-124.	Mentioned in passing
John, B. M., Chua, A. Y. K., Goh, D. H. L., & Wickramasinghe, N. (2016). Graph-based cluster analysis to identify similar questions: A design science approach. <i>Journal of the Association for Information Systems</i> , 17(9), 590-613.	Artifact
Junglas, I., Niehaves, B., Spiekermann, S., Stahl, B. C., Weitzel, T., Winter, R., & Baskerville, R. (2011). The inflation of academic intellectual capital: The case for design science research in Europe. <i>European Journal of Information Systems</i> , 20(1), 1-6.	Editorial
Keith, M., Demirkan, H., & Goul, M. (2013). Service-oriented methodology for systems development. <i>Journal of Management Information Systems</i> , 30(1), 227-259.	Action design research
Ketter, W., Peters, M., Collins, J., & Gupta, A. (2016). Competitive benchmarking: An IS research approach to address wicked problems with big data and analytics. <i>MIS Quarterly</i> , 40(4), 1057-1080.	Artifact
Ketter, W., Peters, M., Collins, J., & Gupta, A. (2016). A multiagent competitive gaming platform to address societal challenges. <i>MIS Quarterly</i> , 40(2), 447-460.	Artifact
Kohler, T., Fueller, J., Matzler, K., & Stieger, D. (2011). Co-creation in virtual worlds: The design of the user experience. <i>MIS Quarterly</i> , 35(3), 773-788.	Action design research
Kolfschoten, G. d. V., G-J. (2009). A design approach for collaboration processes: A multimethod design science study in collaboration engineering. <i>Journal of Management Information Systems</i> , 26(1), 225-256.	Artifact
Kolkowska, E., Karlsson, F., & Hedstrom, K. (2017). Towards analysing the rationale of information security noncompliance: Devising a value-based compliance analysis method. <i>Journal of Strategic Information Systems</i> , 26(1), 39-57.	Design principles
Kuechler, B., & Vaishnavi, V. (2008). On theory development in design science research: Anatomy of a research project. <i>European Journal of Information Systems</i> , 17(5), 489-504.	Design theory
Kuechler, W., & Vaishnavi, V. (2012). A framework for theory development in design science research: Multiple perspectives. <i>Journal of the Association for Information Systems</i> , 13(6), 395-423.	Methodology
Lang, K., Shang, R., & Vragov, R. (2015). Consumer co-creation of digital culture products: Business threat or new opportunity? <i>Journal of the Association for Information Systems</i> , 16(9), 766-798.	Artifact
Larsen, K. R., & Bong, C. H. (2016). A tool for addressing construct identity in literature reviews and meta-analyses. <i>MIS Quarterly</i> , 40(3), 529-551.	Artifact
Lau, R. Y. K., Liao, S. S. Y., Wong, K. F., & Chiu, D. K. W. (2012). Web 2.0 environmental scanning and adaptive decision support for business mergers and acquisitions. <i>MIS Quarterly</i> , 36(4), 1239-1268.	Artifact
Lederman, R., & Johnston, R. B. (2011). Decision support or support for situated choice: Lessons for system design from effective manual systems. <i>European Journal of Information Systems</i> , 20(5), 510-528.	Mentioned in passing

Table D1. Papers Included in Content Analysis with Labels

Lee, A. S., & Hubona, G. S. (2009). A scientific basis for rigor in information systems research. <i>MIS Quarterly</i> , 33(2), 237-262.	Research commentary
Lee, A. S., Thomas, M., & Baskerville, R. L. (2015). Going back to basics in design science: From the information technology artifact to the information systems artifact. <i>Information Systems Journal</i> , 25(1), 5-21.	Methodology
Lee, J., Wyner, G. M., & Pentland, B. T. (2008). Process grammar as a tool for business process design. <i>MIS Quarterly</i> , 32(4), 757-778.	Editorial
Lee, J. K. (2016). Reflections on ICT-enabled bright society research. <i>Information Systems Research</i> , 27(1), 1-5.	Artifact
Li, M. X., Jiang, Q. Q., Tan, C. H., & Wei, K. K. (2014). Enhancing user-game engagement through software gaming elements. <i>Journal of Management Information Systems</i> , 30(4), 115-149.	Design principles
Li, W. Z., Liu, K. C., Yang, H. Q., & Yu, C. G. (2014). Integrated clinical pathway management for medical quality improvement—based on a semiotically inspired systems architecture. <i>European Journal of Information Systems</i> , 23(4), 400-417.	Artifact
Li, X., Sun, S. X., Chen, K., Fung, T., & Wang, H. Q. (2015). Design theory for market surveillance systems. <i>Journal of Management Information Systems</i> , 32(2), 278-313.	Design theory
Lin, Y. K., Chen, H. C., Brown, R. A., Li, S. H., & Yang, H. J. (2017). Healthcare predictive analytics for risk profiling in chronic care: A Bayesian multitask learning approach. <i>MIS Quarterly</i> , 41(2), 473-495.	Artifact
Lindgren, R., Henfridsson, O., & Schultze, U. (2004). Design principles for competence management systems: A synthesis of an action research study. <i>MIS Quarterly</i> , 28(3), 435-472.	Action design research
Liu, D., Santhanam, R., & Webster, J. (2017). Toward meaningful engagement: A framework for design and research of gamified information systems. <i>MIS Quarterly</i> , 41(4), 1011-1034.	Research commentary
Loock, C. M., Staake, T., & Thiesse, F. (2013). Motivating energy-efficient behavior with green IS: An investigation of goal setting and the role of defaults. <i>MIS Quarterly</i> , 37(4), 1313-1332.	Artifact
Lou, H., Chau, P. Y. K., & Li, D. (2005). Understanding individual adoption of instant messaging: An empirical investigation. <i>Journal of the Association for Information Systems</i> , 6(4), 102-129.	Mentioned in passing
Lukyanenko, R., Parsons, J., Wiersma, Y., Wachinger, G., Huber, B., & Meldt, R. (2017). Representing crowd knowledge: Guidelines for conceptual modeling of user-generated content. <i>Journal of the Association for Information Systems</i> , 18(4), 297-339.	Design principles
Lyytinen, K., & King, J. L. (2004). Nothing at the center? Academic legitimacy in the information systems field. <i>Journal of the Association for Information Systems</i> , 5(6), 220-246.	Mentioned in passing
Mandviwalla, M. (2015). Generating and justifying design theory. <i>Journal of the Association for Information Systems</i> , 16(5), 314-344.	Methodology
March, S. T., & Storey, V. C. (2008). Design science in the information systems discipline: An introduction to the special issue on design science research. <i>MIS Quarterly</i> , 32(4), 725-730.	Editorial
Markus, M. L., & Silver, M. S. (2008). A foundation for the study of IT effects: A new look at DeSanctis and Poole's concepts of structural features and spirit. <i>Journal of the Association for Information Systems</i> , 9(10), 609-632.	Mentioned in Passing
Martens, D., & Provost, F. (2014). Explaining data-driven document classifications. <i>MIS Quarterly</i> , 38(1), 73-99.	Artifact
Mason, R. O. (2004). The legacy of LEO: Lessons learned from an English Tea and Cake Company's pioneering efforts in information systems. <i>Journal of the Association for Information Systems</i> , 5(5), 183-219.	Mentioned in Passing
Mastrogiacomo, S., Misonier, S., & Bonazzi, R. (2014). Talk before it's too late: Reconsidering the role of conversation in information systems project management. <i>Journal of Management Information Systems</i> , 31(1), 47-77.	Design theory
Matook, S., & Brown, S. A. (2017). Characteristics of IT artifacts: A systems thinking-based framework for delineating and theorizing IT artifacts. <i>Information Systems Journal</i> , 27(3), 309-346.	Mentioned in passing
McKay, J., Marshall, P., & Hirschheim, R. (2012). The design construct in information systems design science. <i>Journal of Information Technology</i> , 27(2), 125-139.	Methodology
McLaren, T. S., Head, M. M., Yuan, Y. F., & Chan, Y. E. (2011). A multilevel model for measuring fit between a firm's competitive strategies and information systems capabilities. <i>MIS Quarterly</i> , 35(4), 909-929.	Artifact

Table D1. Papers Included in Content Analysis with Labels

Melville, N. P. (2010). Information systems innovation for environmental sustainability. <i>MIS Quarterly</i> , 34(1), 1-21.	Mentioned in passing
Meth, H., Mueller, B., & Maedche, A. (2015). Designing a requirement mining system. <i>Journal of the Association for Information Systems</i> , 16(9), 799-837.	Artifact
Montealegre, R., Hovorka, D., & Germonprez, M. (2014). A coevolutionary view of information services development: Lessons from the US National Oceanic and Atmospheric Administration. <i>Journal of the Association for Information Systems</i> , 15(9), 577-613.	Mentioned in passing
Muller-Wienbergen, F., Muller, O., Seidel, S., & Becker, J. (2011). Leaving the beaten tracks in creative work—a design theory for systems that support convergent and divergent thinking. <i>Journal of the Association for Information Systems</i> , 12(11), 714-740.	Design theory
Nambisan, S. (2013). Information technology and product/service innovation: A brief assessment and some suggestions for future research. <i>Journal of the Association for Information Systems</i> , 14(4), 215-226.	Mentioned in passing
Narman, P., Holm, H., Ekstedt, M., & Honeth, N. (2013). Using enterprise architecture analysis and interview data to estimate service response time. <i>Journal of Strategic Information Systems</i> , 22(1), 70-85.	Artifact
Niederman, F., & March, S. (2014). Moving the work system theory forward. <i>Journal of the Association for Information Systems</i> , 15(6), 346-360.	Research commentary
Niehaves, B., & Ortbach, K. (2016). The inner and the outer model in explanatory design theory: The case of designing electronic feedback systems. <i>European Journal of Information Systems</i> , 25(4), 303-316.	Methodology
Nissen, M. E. (2005). Dynamic knowledge patterns to inform design: A field study of knowledge stocks and flows in an extreme organization. <i>Journal of Management Information Systems</i> , 22(3), 225-263.	Mentioned in passing
Nunamaker, J. F., Briggs, R. O., Derrick, D. C., & Schwabe, G. (2015). The last research mile: Achieving both rigor and relevance in information systems research. <i>Journal of Management Information Systems</i> , 32(3), 10-47.	Methodology
Oetzel, M. C., & Spiekermann, S. (2014). A systematic methodology for privacy impact assessments: A design science approach. <i>European Journal of Information Systems</i> , 23(2), 126-150.	Editorial
Osterle, H., Becker, J., Frank, U., Hess, T., Karagiannis, D., Krcmar, H., Sinz, E. J. (2011). Memorandum on design-oriented information systems research. <i>European Journal of Information Systems</i> , 20(1), 7-10.	Artifact
Papas, N., O'Keefe, R. M., & Seltsikas, P. (2012). The action research vs design science debate: Reflections from an intervention in egovernment. <i>European Journal of Information Systems</i> , 21(2), 147-159.	Methodology
Parsons, J., & Ralph, P. (2014). Generating effective recommendations using viewing-time weighted preferences for attributes. <i>Journal of the Association for Information Systems</i> , 15(8), 484-513.	Artifact
Parsons, J., & Wand, Y. (2008). Using cognitive principles to guide classification in information systems modeling. <i>MIS Quarterly</i> , 32(4), 839-868.	Design principles
Peppers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. <i>Journal of Management Information Systems</i> , 24(3), 45-77.	Methodology
Peters, C., Blohm, I., & Leimeister, J. M. (2015). Anatomy of successful business models for complex services: insights from the telemedicine field. <i>Journal of Management Information Systems</i> , 32(3), 75-104.	Artifact
Piel, J. H., Hamann, J. F. H., Koukal, A., & Breitner, M. H. (2017). Promoting the system integration of renewable energies: Toward a decision support system for incentivizing spatially diversified deployment. <i>Journal of Management Information Systems</i> , 34(4), 994-1022.	Artifact
Prat, N., Comyn-Wattiau, I., & Akoka, J. (2015). A taxonomy of evaluation methods for information systems artifacts. <i>Journal of Management Information Systems</i> , 32(3), 229-267.	Methodology
Pries-Heje, J., & Baskerville, R. (2008). The design theory nexus. <i>MIS Quarterly</i> , 32(4), 731-755.	Design theory
Provost, F., Martens, D., & Murray, A. (2015). Finding similar mobile consumers with a privacy-friendly geosocial design. <i>Information Systems Research</i> , 26(2), 243-265.	Artifact
Rai, A. (2017). Diversity of design science research. <i>MIS Quarterly</i> , 41(1), iii-xviii.	Editorial

Table D1. Papers Included in Content Analysis with Labels

Reinecke, K., & Bernstein, A. (2013). Knowing what a user likes: A design science approach to interfaces that automatically adapt to culture. <i>MIS Quarterly</i> , 37(2), 427-453.	Artifact
Rohde, M., Brodner, P., Stevens, G., Betz, M., & Wulf, V. (2017). Grounded design—a praxeological IS research perspective. <i>Journal of Information Technology</i> , 32(2), 163-179.	Methodology
Rosenkranz, C., Holten, R., Rakers, M., & Behrmann, W. (2017). Supporting the design of data integration requirements during the development of data warehouses: A communication theory-based approach. <i>European Journal of Information Systems</i> , 26(1), 84-115.	Mentioned in passing
Roussinov, D., & Chau, M. (2008). Combining information seeking services into a meta supply chain of facts. <i>Journal of the Association for Information Systems</i> , 9(3-4), 175-199.	Artifact
Rowe, F. (2010). Valuing worldwide diversity in a European spirit: being more critical and open. <i>European Journal of Information Systems</i> , 19(5), 495-500.	Editorial
Rowe, F. (2012). Toward a richer diversity of genres in information systems research: New categorization and guidelines. <i>European Journal of Information Systems</i> , 21(5), 469-478.	Editorial
Saar-Tsechansky, M. (2015). The business of business data science in IS journals. <i>MIS Quarterly</i> , 39(4), III-VI.	Editorial
Sahay, S. (2004). Beyond utopian and nostalgic views of information technology and education: Implications for research and practice. <i>Journal of the Association for Information Systems</i> , 5(7), 282-313.	Mentioned in passing
Schmeil, A., Eppler, M. J., & de Freitas, S. (2012). A Structured Approach for Designing Collaboration Experiences for Virtual Worlds. <i>Journal of the Association for Information Systems</i> , 13(10), 836-860.	Artifact
Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., & Lindgren, R. (2011a). Action design research. <i>MIS Quarterly</i> , 35(1), 37-56.	Methodology
Sherer, S. A. (2014). Advocating for action design research on IT value creation in healthcare. <i>Journal of the Association for Information Systems</i> , 15(12), 860-878.	Research commentary
Shi, D. H., Guan, J., Zurada, J., & Manikas, A. (2017). A Data-Mining Approach to Identification of Risk Factors in Safety Management Systems. <i>Journal of Management Information Systems</i> , 34(4), 1054-1081.	Artifact
Siponen, M., Baskerville, R., & Heikka, J. (2006). A design theory for secure information systems design methods. <i>Journal of the Association for Information Systems</i> , 7(11), 725-770.	Design theory
Spagnoletti, P., Resca, A., & Lee, G. (2015). A design theory for digital platforms supporting online communities: a multiple case study. <i>Journal of Information Technology</i> , 30(4), 364-380.	Design principles
Spagnoletti, P., Resca, A., & Saebo, O. (2015). Design for social media engagement: Insights from elderly care assistance. <i>Journal of Strategic Information Systems</i> , 24(2), 128-145.	Action design research
Stein, M. K., Galliers, R. D., & Whitley, E. A. (2016). Twenty years of the European information systems academy at ECIS: Emergent trends and research topics. <i>European Journal of Information Systems</i> , 25(1), 1-15.	Editorial
Te'eni, D., Seidel, S., & vom Brocke, J. (2017). Stimulating dialog between information systems research and practice. <i>European Journal of Information Systems</i> , 26(6), 541-545	Editorial
Twyman, N. W., Lowry, P. B., Burgoon, J. K., & Nunamaker, J. F. (2014). Autonomous scientifically controlled screening systems for detecting information purposely concealed by individuals. <i>Journal of Management Information Systems</i> , 31(3), 106-137.	Artifact
Twyman, N. W., Proudfoot, J. G., Schuetzler, R. M., Elkins, A. C., & Derrick, D. C. (2015). Robustness of multiple indicators in automated screening systems for deception detection. <i>Journal of Management Information Systems</i> , 32(4), 215-245.	Artifact
Umapathy, K., Purao, S., & Barton, R. R. (2008). Designing enterprise integration solutions: Effectively. <i>European Journal of Information Systems</i> , 17(5), 518-527.	Artifact
Van Looy, A., Poels, G., & Snoeck, M. (2017). Evaluating business process maturity models. <i>Journal of the Association for Information Systems</i> , 18(6), 461-486	Mentioned in passing
VanderMeer, D., Dutta, K., & Datta, A. (2012). A cost-based database request distribution technique for online e-commerce applications. <i>MIS Quarterly</i> , 36(2), 479-507.	Artifact
Venable, J., Pries-Heje, J., & Baskerville, R. (2016). FEDS: A framework for evaluation in design science research. <i>European Journal of Information Systems</i> , 25(1), 77-89.	Methodology

Table D1. Papers Included in Content Analysis with Labels

Venkatesh, V., Aloysius, J. A., Hoehle, H., & Burton, S. (2017). Design and evaluation of auto-id enabled shopping assistance artifacts in customers' mobile phones: Two retail store laboratory experiments. <i>MIS Quarterly</i> , 41(1), 83-113.	Artifact
von Krogh, G., & Haefliger, S. (2010). Opening up design science: The challenge of designing for reuse and joint development. <i>Journal of Strategic Information Systems</i> , 19(4), 232-241.	Artifact
Wang, J., Ipeirotis, P. G., & Provost, F. (2017). Cost-effective quality assurance in crowd labeling. <i>Information Systems Research</i> , 28(1), 137-158.	Artifact
Wastell, D. (2010). Managing as designing: "Opportunity knocks" for the IS field? <i>European Journal of Information Systems</i> , 19(4), 422-431.	Editorial
Weedman, J. (2008). Client as designer in collaborative design science research projects: What does social science design theory tell us? <i>European Journal of Information Systems</i> , 17(5), 476-488.	Design theory
Williams, K., Chatterjee, S., & Rossi, M. (2008). Design of emerging digital services: A taxonomy. <i>European Journal of Information Systems</i> , 17(5), 505-517.	Design principles
Winter, R. (2008). Design science research in Europe. <i>European Journal of Information Systems</i> , 17(5), 470-475.	Editorial
Xu, J., Wang, G. A., Li, J. X., & Chau, M. (2007). Complex problem solving: Identity matching based on social contextual information. <i>Journal of the Association for Information Systems</i> , 8(10), 525-545.	Artifact
Yang, L. L., Su, G. F., & Yuan, H. Y. (2012). Design principles of integrated information platform for emergency responses: The case of 2008 Beijing Olympic Games. <i>Information Systems Research</i> , 23(3), 761-786.	Design principles
Yang, Y. P., Singhal, S., & Xu, Y. J. (2012). Alternate strategies for a win-win seeking agent in agent-human negotiations. <i>Journal of Management Information Systems</i> , 29(3), 223-255.	Artifact
Zahedi, F. M., Walia, N., & Jain, H. (2016). Augmented virtual doctor office: Theory-based design and assessment. <i>Journal of Management Information Systems</i> , 33(3), 776-808.	Artifact

About the Authors

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